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DARBY & DARBY P.C.			LE, BRIAN Q	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/24/2007 has been entered.

***Response to Arguments***

2. Applicant's arguments, see Remarks, filed 05/24/2007, with respect to the rejection(s) of claim(s) 1-2, 4-7, 12-13, 24-26, and 28-29 under 35 U.S.C. 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kondo et al. U.S. Pub. No. 2004/0076996.

***Claim Objections***

3. Claim 1 is objected to because of the following informalities: limitation a), the word "combing" is misspelled. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 1-2, 4-6, and 12-13, 24-26 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kley U.S. Patent No. 6,396,054 and Kondo et al. U.S. Pub. No. 2004/0076996.

Regarding claim 1, Kley teaches a method comprising:

a) alignment an object on a surface by molecular combing (column 16, lines 50-60 where object is positioning on the x,y plane (aligning object) on a surface (diamond coated surface) (column 16, lines 15-20) by molecular combing (column 17));

b) imaging the object by at least two different modalities (different modes) of scanning probe microscopy (SPM) (column 2, lines 24-28) to obtain data for one or more properties of the object (metric measurements) (column 2, lines 50-51);

c) analyzing the data using a model-based analysis using one or more models of physical structures of known objects (topography) (column 4, lines 63-67);

c) estimating the values of one or more parameters from the data analysis (AFM and STM measurements) (column 10, lines 15-16); and

d) fusing the estimated parameters to form one ore more fused parameters comprising a parameter-based characterization of the object (column 19, lines 20-50).

However, Kley does not explicitly disclose wherein an object can be a biomolecule and aligning a biomolecule in a parallel manner on a surface. Kondo teaches a method wherein an object can be a biomolecule (biological sample/DNA) (abstract, second paragraph); aligning a biomolecule in a parallel manner on a surface (abstract, second paragraph; page 3, column 1, [0026]; and page 4, column 1, [0042]) and wherein the molecular combining comprises attachment of the biomolecule to a surface (connections with peripheral surface) (page 5, column

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1, [0058-0059]) and alignment of the biomolecule (abstract, second paragraph; page 3, column 1, [0026]; and page 4, column 1, [0042]). Modifying Kley according to Kondo would be able to align biomolecule in parallel so that the detection of biomolecule (DNA) can be conducted rapidly and with precision (page 3, column 1, [0026]) . This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Kley according to Kondo.

For claim 2, Kley teaches the method of claim 1, wherein parameter fusion is based on the model of the physical structure (gathering data/producing data) (column 19, lines 20-50).

Regarding claim 4, as disclosed in claim 1, Kondo also teaches the method further comprising identifying the biomolecule (detection of DNA) (page 1, column 1, [0001]).

For claim 5, as disclosed in claim 1, Kley discloses the method further comprising comparing the fused parameters with parameters determined from known biomolecule (as disclosed in claim 1) to identify an occurrence of a known biomolecule (topography)(column 4, lines 65-67).

Regarding claim 6, Kley (as discussed in claim 1) teaches the SPM imaging includes at least two modalities selected from the group consisting of scanning tunneling microscopy (STM) (column 2, lines 24-37).

For claim 12, as disclosed in claim 1, Kley also teaches the method further comprising known biomolecule structures to obtain ranges of parameters for each type of biomolecule (column 13, lines 60-67).

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Regarding claim 13, as disclosed in claim 1, Kley further teaches the method wherein the parameter ranges for known biomolecules are used in estimating the parameters (column 14, lines 25-32).

For claim 24, please refer back to claim 1 for teachings and explanations. In addition, Kley further teaches controller (FIG. 26, "controller", element 114) to control the operation of the scanning probe microscope, memory (FIG. 26, "memory", element 124) to include one or more characterizations of known structures, and a surface for attachment (column 16, lines 15-20).

For claim 25, please refer back claim 5 for the teachings and explanations.

Regarding claim 26, Kley discloses the system wherein the characterizations of known structures are used to analyze a set of SPM images (column 4, lines 63-67 through column 5, 5-16).

For claim 28, please refer back to claim 5 for the teachings and explanations.

For claim 29, please refer to claim 1 for teachings and explanations. In addition, Kley further teaches step of analyzing images and reanalyzing the data (column 4, lines 63-67; column 7, lines 5-10; column 11, lines 60-67).

For claim 30, please refer back to claim 6 for further teachings and explanations.

6. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kley U.S. Patent No. 6,396,054 and Kondo et al. U.S. Pub. No. 2004/0076996, as applied to claims 1 and 8 above, and further in view of Grand et al. "Epitaxial growth of copper phthalocyanine monolayers on Ag(111)", Surface Science, vol. 366, no. 3, 1 November 1996.

Regarding claim 8, Kley does not explicitly teach the method wherein the parameters are estimated by level set techniques, PDE (partial differential equation) techniques. Grand teaches the method wherein the parameters are estimated by level set techniques, PDE (partial differential equation) techniques (page 404, column 1, 3<sup>rd</sup> paragraph). Modifying Kley's method of utilizing scanning probe microscopy according to Grand would be able to use partial differential equation as an estimation tool in estimating parameters. This would improve processing and therefore, it would have been obvious to one of ordinary skill in the art to modify Kley according to Grand.

For claim 9, Grand also teaches a method further comprising embedding the techniques in a probabilistic estimation framework (Page 405, column 1, last 15 lines and page 406, column 1, 1<sup>st</sup> 15 lines).

Regarding claim 10, Grand teaches the method further comprising classifying the subject by applying vector quantization, support vector machines (FIG. 7). Modifying Kley's method of utilizing scanning probe microscopy according to Grand would be able to further classify fused parameter. This would improve processing and therefore, it would have been obvious to one of ordinary skill in the art to modify Kley according to Grand.

Referring claim 11, Grand teaches the method further comprising using known biomolecule structures to generate training sets of data (page 405, 1<sup>st</sup> column, last 10 lines).

**CONCLUSION**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q. Le whose telephone number is 571-272-7424. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Brian Le  
June 13, 2007